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crossed by the Jersey Central railway further up. In this connection it may be of interest to note that the occurrence of *Sphagnum* species in New Jersey is likely to be fairly uniform along a given water-course, varying only insofar that some species require still water in the form of a natural or artificial pond; but it is entirely impossible to predict what will occur along a different water-course. In several days of the summer of 1913, with headquarters at Island Heights, I sectioned all of the water-courses from Toms River to Oyster Creek south of the three branches of Forked River, many of them at two and one at three points, which, added to the work in the same locality in the summer of 1911, brought out the above-mentioned facts in a striking way. These facts seem to show the difficulty of the conveyance of *Sphagnum* spores (many of the New Jersey species fruit there rarely if at all) across the stretches of dry pine-barrens, and thereby only increase one's wonder as to how such a remarkable number of species originally "got there" and what determined their present inexplicable irregularity of distribution. In the pond on the North Branch of Forked River by the Forked River railroad station *S. portoricense* was well established, but entirely without the companions, *S. Pylaesii* and *S. cyclophyllum*, in its station at Toms River.

ITHACA, N. Y.

REVISED LIST OF HEPATICS COLLECTED IN AND NEAR WORCESTER, MASSACHUSETTS

HELEN E. GREENWOOD

A preliminary list of Hepatics collected within the limits of Worcester, Massachusetts, by Miss Helen E. Greenwood, was printed in the January BRYOLOGIST for 1910. Since that time the collector, having gone farther afield, has increased the number of specimens sufficiently to make it seem worth while to print a revised list. As before, all the Hepatics listed below have been collected by Miss Greenwood, either in Worcester or in the nearby towns. The accompanying notes indicate whether the plants occur in large or small numbers.

Comparison with the former list will show that *Cephalozia serriiflora*, which appeared before, has been withdrawn, not only because it has not been found a second time, but also because there has arisen some doubt as to the correct naming of the specimen in the first place. For a time it seemed certain that *Cephalozia lacinulata* and *Cephalozia macrantha* might find a permanent place on the list, one authority being sure that an authentic specimen of each had been found; but lack of agreement among those consulted makes it undesirable to include these in the main list at present. Of the 62 different species listed below there are only four that can lay any claim to rarity or distinction of any kind. Of these, *Nardia Geoscyphus* at the time it was sent into the Society Herbarium, had been collected only three times previously in the United States, thus making Worcester the fourth station.

Jungermannia pumila, *Mylia anomala*, and *Cephalozia fluitans* were new additions to the Massachusetts list.

Three very dry spring and summer seasons in succession have done much to reduce the amount of the more abundant species, so that, although the plants may be found in the same place year after year, it becomes increasingly difficult to collect enough of any one kind for distribution or for class work.

As before, hearty thanks are due to Miss Haynes and Dr. Conklin for their unfailing encouragement and painstaking assistance in determining specimens. Duplicates of all species listed below have been sent to the Society Herbarium.

The arrangement of names follows the plan of Miss C. C. Haynes's Exchange List of the Hepaticae of the United States and Canada.

Ricciaceae

1. *Ricciella fluitans* (L.) A. Br. Found only once, floating on a slow stream, Worcester near Boylston line.

2. *Ricciella Sullivantii* (Aust.) Evans. Common. Damp soil; edge of ponds from which water has receded, springy roadsides, borders of pathways. Worcester, Leicester, Auburn, Oxford, Holden.

3. *Ricciocarpus natans* (L.) Corda. Floating on ponds, growing on mud. Occurs abundantly on parts of Lake Quinsigamond, Worcester.

Marchantiaceae

4. *Asterella tenella* (L.) Beauv. Moist grassy soil by edge of drive and in open woodlot. Leicester, Auburn.

5. *Conocephalum conicum* (L.) Dumort. Quite common. On shaded banks by roadsides or along brooks, forming a thick mat over soil or stones. Worcester, West Boylston, Leicester.

6. *Lunularia cruciata* (L.) Dumort. In greenhouses. Worcester.

7. *Marchantia polymorpha* L. Fairly common. Damp soil: gardens, woods, edge of pond, bank wall of city street, especially where ground has been burned over. Worcester, Auburn, Holden.

Metzgeriaceae

8. *Riccardia latifrons* Lindb. On rotten logs, wet soil in swamp with mosses. Oxford, Holden (North Woods).

9. *Riccardia multifida* (L.) S. F. Gray. Wet swampy soil with mosses. Holden.

10. *Riccardia pinguis* (L.) S. F. Gray. Swamps: standing pools with mosses. Worcester.

11. *Pallavicinia Lyellii* (Hook.) S. F. Gray. Quite common. Swamps, forming thick mats. Worcester, Holden, Oxford.

12. *Pellia epiphylla* (L.) Corda. Very common. Moist soil along banks of brooks, springy roadsides, boggy soil in pastures. Worcester (many places), Oxford, Auburn, Holden, Princeton.

13. *Blasia pusilla* L. Damp soil by roadsides. Worcester, Oxford, Holden.

14. *Fossombronia foveolata* Lindb. Damp grassy soil in woodlot, recently cut. Leicester.

Jungermanniaceae

15. *Nardia crenulata* (Smith) Lindb. Common. Damp soil: on roadsides, shaded paths in woods. Worcester, Oxford, Holden.

16. *Nardia Geoscyphus* (DeNot.) Lindb. Damp shaded ground, pathways. Worcester (two places). Worcester, fourth station in the United States for this species.

17. *Nardia hyalina* (Lyell) Carringt. Wet boggy soil. Oxford.

18. *Jungermannia lanceolata* L. Damp shaded banks. Worcester.

19. *Jungermannia pumila* With. On stones in bed of brooks, sometimes on wet soil near edge of brook. Worcester, Leicester, Oxford. New to Massachusetts.

20. *Jamesoniella autumnalis* (DC.) Steph. Quite common. Forming a thick mat or layer on damp soil, rocks, or rotten logs. Worcester, Oxford, Shrewsbury, Leicester.

21. *Lophozia barbata* (Schreb.) Dumort. On rock, at edge of carriage drive. Mt. Wachusett, Princeton.

22. *Lophozia bicrenata* (Schmid.) Dumort. Shaded banks by roadside or pathway. Leicester, Holden.

23. *Lophozia incisa* (Schrad.) Dumort. On damp shaded banks. Worcester.

24. *Plagiochila asplenoides* (L.) Dumort. Very wet soil, shaded, rocks in bed of brook. Worcester, Leicester.

25. *Mylia anomala* (Hook.) S. F. Gray. With sphagnum in quaking bog. Holden. New to Massachusetts.

26. *Lophocolea heterophylla* (Schrad.) Dumort. Very common. On old stumps, soil of roadside banks, shaded banks, damp soil in woods, base of trees, rotten logs.

27. *Chiloscyphus pallescens* (Ehrh.) Dumort. On stones in bed of brook. Worcester, Holden.

28. *Chiloscyphus polyanthus* (L.) Corda. On wet swampy soil with mosses, in bed of brook, submerged. Worcester.

29. *Chiloscyphus rivularis* (Schrad.) Loeske. On rocks in bed of brook, submerged. Worcester, Holden.

30. *Harpanthus scutatus* (Web. & Mohr) Spruce. On rotten logs. Worcester.

31. *Geocalyx graveolens* (Schrad.) Nees. Damp soil near edge of brooks, swamps, rotten logs. Worcester, Holden.

32. *Cephalozia bicuspidata* (L.) Dumort. Damp shaded soil in woods. Worcester, Holden.

33. *Cephalozia connivens* (Dicks.) Lindb. Wet swampy soil with mosses. Worcester (several places).

34. *Cephalozia curvifolia* (Dicks.) Dumort. On rotten logs. Worcester, Auburn, Rochdale.

35. *Cephalozia fluitans* (Nees) Spruce. In quaking bog. Holden. New to Massachusetts.

36. *Cephalozia media* Lindb. Very common. Rotten logs, damp shaded ground. Worcester, Holden, Oxford, Leicester.

37. *Cephalozia pleniceps* (Aust.) Lindb. Wet swampy soil. Worcester, Holden.

38. *Cephaloziella bifida* (Schreb.) Schiffn. Decaying stumps. Worcester.
39. *Cephaloziella byssacea* (Roth) Warnst. Damp ledges. Oxford.
40. *Odontoschisma denudatum* (Mart.) Dumort. On decaying stump.
Holden.
41. *Calypogeia Neesiana* (Massal. & Carest.) C. Müll. Frib. Wet swampy
soil. Worcester, Holden.

[To Be Concluded].

LEPTOBRYUM PYRIFORME (L.) WILSON, WITH GEMMAE

A. J. GROUT

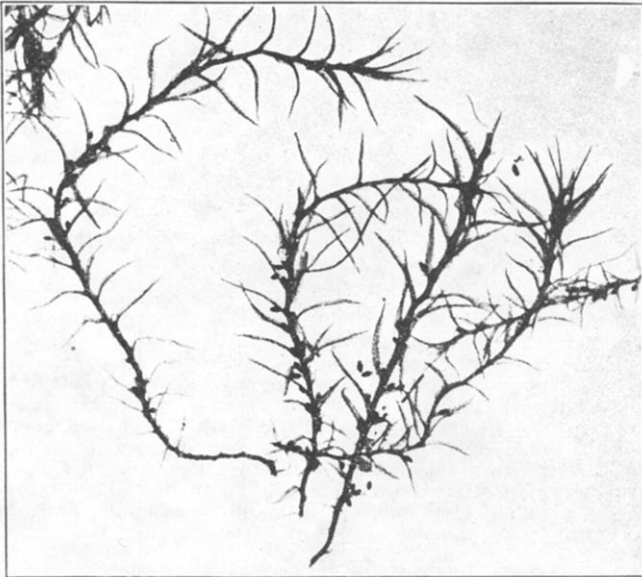


FIG. 1.—*Leptobryum pyriforme* with gemmae. Plants from Miami University. x 10

In January last C. A. Richards, of Miami University, sent me a moss from one of their greenhouses that bore numerous brood bodies in the axils of the leaves. "The plants grew on a loose sandy soil with which some cinders had been mixed. They were very plentiful, but did not grow in tufts as most mosses do. The stalks were more or less separated."

A careful study of the plants showed them to be *L. pyriforme*. So far as I know this state of the species has not been recorded in North America before, although it has been described by Correns and other European botanists and our own Mr. Heald.